

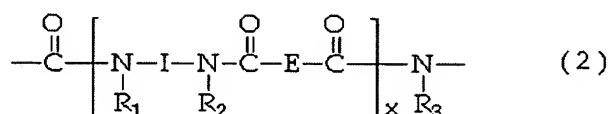
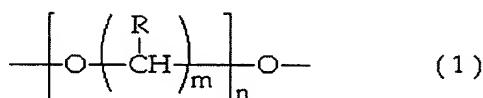
CLAIMS

WHAT IS CLAIMED IS:

1. A process for preparing polyether poly(N-substituted urethane) having a polyether unit of formula (1) and a urethane unit of formula (2), comprising:

(a) reacting a polyether polyurethane having a weight average molecular weight of 50,000 to 2,000,000 which polyurethane comprises a polyether unit and a urethane unit, with alkaline organic metal salt to produce polyether polyurethane metal salt; and

(b) reacting the polyether polyurethane metal salt with an alkylating agent selected from tosylate and mesylate to substitute on N-position,

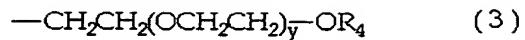


wherein R is a hydrogen atom or alkyl; R₁, R₂ and R₃ are optionally alkyl, aryl, alkylaryl or oligoethylene oxide derivatives and at least one of R₁, R₂ and R₃ is oligoethylene oxide derivative; I is isocyanate; E is glycol having less than 400 of number average molecular weight or amine; m is an integer of 2-4; n is an integer of 1-60; and x is an integer of 1-5.

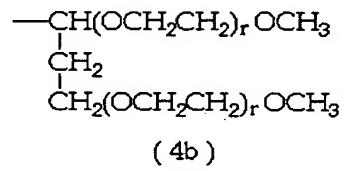
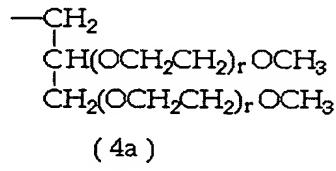
2. The process according to claim 1, wherein said polyether polyurethane has a weight average molecular weight of 100,000 to 200,000.

3. The process according to claim 1, wherein said alkaline organic metal salt is selected from the group consisting of potassium *tert*-butoxide (*t*-BuOK), lithium amide (LiNH₂), sodium amide (NaNH₂), lithium diethylamide (LiN(CH₂CH₃)₂) and a mixture thereof.

4. The process according to claim 1, wherein the reaction of alkylation is performed by using a tosylate or mesylate of oligoethylene oxide derivatives of formula (3) and one selected from the group consisting of C₁-C₁₂ alkyl tosylate or alkyl mesylate, benzyl tosylate, 1-naphthyl tosylate, 9-anthryl tosylate, carboxymethyl tosylate and a mixture thereof,



wherein R₄ is C₁-C₁₂ alkyl, mesyl, tosyl, acryl, methacryl, vinyl or glycerol diethoxylate of formula (4a) or (4b)



wherein y and r are independently integer of 1-20.

5. The process according to claim 4, wherein said oligoethylene oxide derivatives of formula (3) is substituted with a crosslinkable functional group of tosyl, acryl, methacryl or vinyl.

6. The process according to claim 5, further comprising a crosslinking reaction using said crosslinkable functional group.

7. The process according to claim 6, wherein said crosslinking reaction is photo-crosslinking reaction, heat-initiating crosslinking reaction or substitution reaction in a solution.